

Semester 1 Final AAT

Studying Techniques:

- Go over old tests and quizzes redoing the problems
- Complete this review packet
- Ask questions in class

Information about the final

- Your final is on Friday January 25th from 9:40AM-11:10AM
- Your final is multiple choice and is all calculator

General information

- I do not round grades
- Make sure you go home tonight and check out Skyward and make sure everything is entered correctly

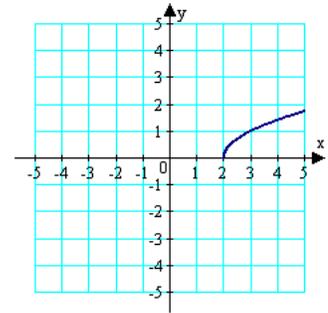
Good luck! You will do great!!

Chapter P Review

- List ALL the classifications for $-\frac{2}{3}$
- Solve for x: $|3x-5|=12$
- Solve for x: $\sqrt{2x+7}-x=2$ (remember to check your answers if they work!)
- Simplify $\frac{5}{3}a + \frac{1}{9}a$
- Evaluate/Simplify the following:
 - 3^{-4}
 - Evaluate $4q^2r^3$ when $q=2$ & $r=-3$
 - $\left(\frac{6a^2b^6}{5a^5b^5}\right)^3$
 - $\sqrt[5]{-486s^6t^7}$
 - $\frac{22t^4m^{11}}{24t^7m^2}$
 - $\left(\frac{4q^3}{-5r^6}\right)\left(\frac{-2r^3}{q^5}\right)$
- Simplify $-2(4t+6z) - 6(t-2z)$
- $(-3t-7u)(8t+9u)$
- $\frac{8x-7}{x+13} - \frac{13x-6}{x+13}$
- $\frac{1}{x^2-16x+63} + \frac{1}{x^2-49}$
- Factor the following and then find the zeros
 - $9x^4 + 3x^3 + 12x^2$
 - $x^2 - 121$
 - $x^2 - 11x + 10$
 - $3x^2 - 5x - 12$

Chapter 1 Review

- For the graph to the right sketch:
 - a graph symmetric with the origin
 - a graph symmetric to the x-axis
 - a graph symmetric with the y-axis



- Find the x- and y-intercepts of the graph of the equation $y = \sqrt{7x-6}$.

13. Write the standard form of the equation of the circle with the given characteristics. center: (1, 4) & radius: 9
14. Find the center and radius of the circle $(x+6)^2 + (y-7)^2 = 9$.
15. Solve the equation $\frac{-3+y}{y} + \frac{-8+y}{y} = -5$
16. Solve the equation $\frac{-8}{(x+7)(x+8)} = \frac{1}{(x+7)} - \frac{7}{x+8}$
17. Write the following quadratic equation in standard form. $x(x+8) = x - 10$
18. Solve the following quadratic equation by factoring. $-4x^2 - 17x + 42 = 0$
19. Solve for x: $(8x+5)^2 = 7$
20. Use the Quadratic Formula to solve $49x^2 - 70x + 23 = 0$.
21. Solve the equation and write complex solutions in standard form. $x^2 - 4x + 53 = 0$
22. Find all solutions to the following equation. $\sqrt[3]{1-6x} - 4 = 0$
23. Find all solutions to the following equation. $(x-10)^{2/3} = 36$
24. Solve and leave your answers in complex form: $x^2 + 4x + 5 = 0$
25. Simplify the following:
- a. $(12-2i) + (6-5i)$ b. $(3+i)(2-4i)$ c. $\frac{2+i}{1-i}$
26. Solve for x: $49x^2 + 25 = 0$
27. Factor the following: $2x^4 + 9x^2 - 5$
28. Find all the solutions $\sqrt{5-x} - 9 = 0$
29. Factor by grouping: $x^3 - 5x^2 + x - 5$

Chapter 2 Review

30. Write the slope-intercept form of the equation of the line through the given point perpendicular to the given line. point: (8, -3) & line: $-9x + 45y = 1$

31. Find the equation of the line in slope intercept form that goes through (-4,6) & (2,5)

32. Does the table describe a function?

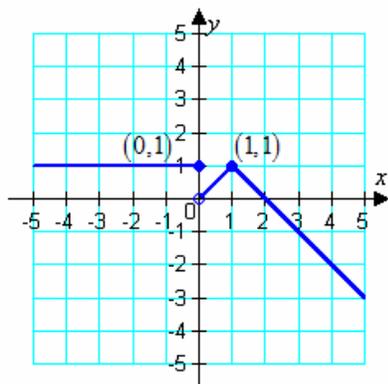
Input value	5	10	12	10	5
Output value	-11	-6	0	6	11

33. Find all the real values such that $f(x) = 0$ for $f(x) = \frac{8x-6}{9}$

34. Find the value(s) for x so that $f(x) = g(x)$ given $f(x) = x^2 - 4x - 1$ & $g(x) = -7x - 3$

35. Find the zeros algebraically $f(x) = \sqrt{2x} - 9$

36. Determine the intervals of increasing, decreasing and constant. Then find the domain & range.



37. Find $(f + g)(x)$.

$$f(x) = -2x^2 + 3x - 5$$

$$g(x) = -9x^2 - 4x - 8$$

38. Find $(f / g)(x)$.

$$f(x) = -9x^2 + 6x$$

$$g(x) = -5 - x$$

39. Find $(fg)(x)$.

$$f(x) = \sqrt{-3x}$$

$$g(x) = \sqrt{-5x + 9}$$

40. Find $(f - g)(x)$.

$$f(x) = \frac{8x}{4x+3}$$

$$g(x) = \frac{8}{x}$$

41. Evaluate $(fg)(1)$ for $f(x) = x^2 - 5$ and $g(x) = x + 8$

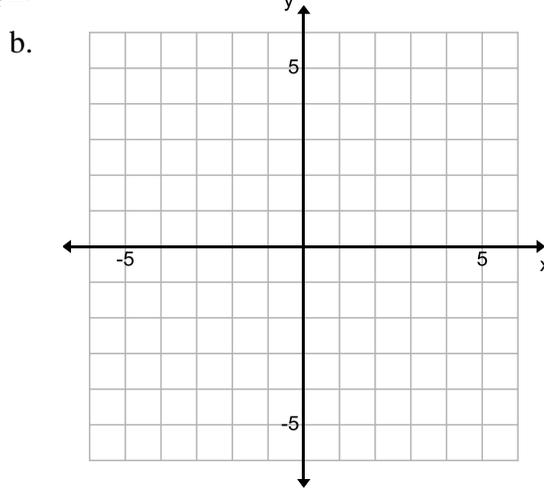
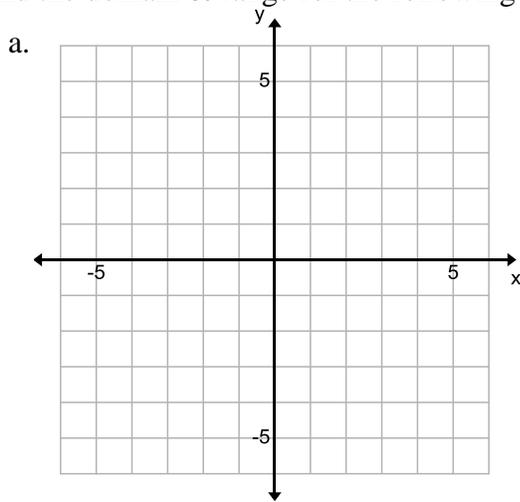
42. Find $g \circ f$.

$$f(x) = x - 3 \quad g(x) = x^2$$

43. Find the inverse function of $f(x) = x^9 - 8$

44. Show algebraically that f and g are inverse functions. $f(x) = 4x + 4$ $g(x) = \frac{x-4}{4}$

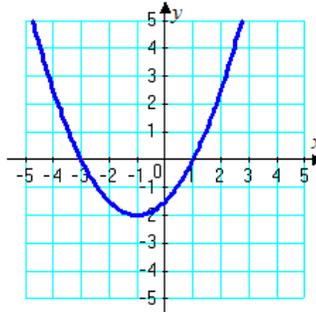
45. Find the domain & range for the following graph:



46. Find the equation of a circle with a center at $(3,5)$ and a point on the edge at $(6,9)$

Chapter 3 Review

47. Write the equation of the graph to the right.



48. Write a quadratic equation that has been reflected over the x -axis, moved 7 units down and 4 units left.

49. Compare the graph of $s(x) = 5(x-5)^2 + 8$ with $s(x) = x^2$.

50. From the graph of the quadratic function $f(x) = (x-6)^2 + 5$, determine the equation of the axis of symmetry.

51. Determine the x -intercept(s) of the quadratic function $f(x) = x^2 + 12x + 35$

52. Write the quadratic function $f(x) = -x^2 + 14x - 44$ in standard form

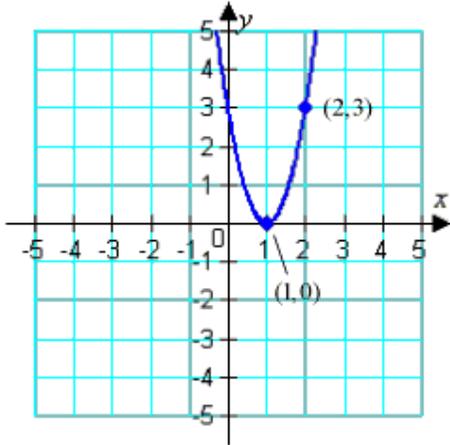
53. Determine the vertex of the graph of the quadratic function $f(x) = x^2 - 3x + \frac{13}{4}$.

54. Write the standard form of the equation of the parabola that has a vertex at $(5, -5)$ and passes through the point $(-9, 4)$.

55. Describe the end behavior of the graph of $s(x) = -7x^4 + 10x^3 - 4$.

56. Find all real zeros of the polynomial $f(x) = x^4 + 8x^3 + 7x^2$ and determine the multiplicity of each.

57. Find the equation of the graph in standard form



58. List all of the possible rational roots of $f(x) = 2x^5 + 17x^2 + 8x - 15$.

59. Divide $(2x^4 - 4x^3 - 29x + 50)$ by $(x - 3)$ using synthetic division.

60. Given $f(x) = 2x^4 + 5x^3 - 36x^2 - 41x + 70$ and that $(x + 5)$ and $(x - 1)$ are factors completely factor
 $f(x)$